

RELATIONSHIPS OF BODY COMPOSITION, BODY
IMAGE, AND SELF-ESTEEM IN COLLEGIATE
FITNESS STAFF

By

XZAVEION PRICE

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RELATIONSHIPS OF BODY COMPOSITION, BODY
IMAGE, AND SELF-ESTEEM IN COLLEGIATE
FITNESS STAFF

Thesis Approved:

Dr. Donna Lindenmeier

Thesis Adviser

Dr. Tim Passmore

Dr. Todd Misener

Name: XZAVEION PRICE

Date of Degree: MAY, 2020

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Abstract: The purpose of this study was to assess the correlation between body composition, perceptions of body image, and levels of self-esteem among Department of Wellness Student Fitness Staff (DOWSFS). Campus wellness centers (CWC) have evolved from gymnasiums to facilities developed to increase the total health and wellbeing of their communities. With that, the health and wellbeing of the students that comprise its staff should be considered as well. This study utilized body mass index (BMI) to measure body composition, Stunkard's Nine Figure Rating Scale (SNFRS) to measure body image, and Rosenberg's Self-Esteem Scale (RSES) to measure self-esteem. Spearman's rank correlation coefficient was used to assess the strength of association between the respondent's BMI, SNRFS score, RSES score, and employment position. There was no significant correlation found between any hypothesized variables. However, there were significant correlations between gender and self-esteem and year and position. Future research in these areas may prove to be beneficial in improving the health and wellness of CWC student staff.

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CHAPTER I

INTRODUCTION

Many of today's collegiate campus recreation centers have rapidly evolved from its days of being gymnasiums to house intramural operations to multifaceted campus wellness centers (CWC). There has been a trend of adopting a total health and wellness. Now, many of these CWC's house several programs and operations that encompass the components considered to make up an individual's wellness: physical, social, emotional, career, intellectual, financial, environmental, and/or spiritual (Bogar, 2008; Hutchinson, 1996; Kelly & Kutch, 2017; Mokoena & Dhurup, 2017). These programs include, but are not limited to, the following: fitness classes, outdoor adventure trips, and instructional courses on cooking and nutrition (Bogar, 2008; Gawronski, 2014). Although CWC's now often include full-time staff members, it is also common for CWC's to hire students on its respective campuses to staff the programs (Bogar, 2008; Kelly & Kutch, 2017). These programs, in conjunction with student staff involvement, allow CWC's to be an integral piece of a university campus' efforts to recruit, retain, and develop their student body (Andreozzi, 2010).

Utilizing the Contingencies of Self-Worth Theory, this study aimed to assess aspects of physical and psychological health within Department of Wellness Student Fitness Employees (DOWSFS) at Oklahoma State University (OSU). This theory suggests that an individual's self-esteem is derived from his or her capabilities and characteristics, such as physical appearance (Jennifer Crocker & Connie T. Wolfe, 2001). This study will specifically focus on self-esteem, body image, and body composition because of the reported relationships on the overall health and wellbeing of people (Hill, Yaroslavsky, & Pettit, 2015; Lowery et al., 2005; McLester, Hicks, Miller, & McLester, 2018).

Some of these relationships with self-esteem include social factors, effects on mental health, and overall happiness (Baumeister, Campbell, Krueger, & Vohs, 2003; Crocker & Luhtanen, 2003). Self-esteem has a number of meanings and references such as self-respect or self-worth. However, self-esteem is commonly defined by the value one places on his or her total self, also referred to as global self-esteem or global judgements of self-worth (Rosenberg, 1965a). An individual who has a positive opinion of his or herself is considered to have high self-esteem. While a person who has a more negative opinion of his or her self is considered to have low self-esteem (Baumeister et al., 2003). In the field of wellness within higher education, self-esteem can prove an essential characteristic among college students due to its correlation to depression. Low self-esteem can lead to increased stress and depression and therefore impairment of academic efforts, whereas high self-esteem may play a role in reduced stress and levels of depression. (Abouserie, 1994; Baumeister et al., 2003; Hill et al., 2015; Regehr, Glancy, & Pitts, 2013).

Another characteristic that may reflect the health of CWC student staff is body image dissatisfaction. A low level of body image, has shown to be associated with numerous psychological and physiological issues such as eating disorders, social anxiety, sexual dysfunction, and low self-esteem (Kline, 2010). Body image can be defined as the psychological construct that explains the subjective attitude and experiences people have towards one's own body (Ganem, Heer, & Morera, 2009). Body satisfaction is defined as a person's psychological imagery of his or her physical self and their evaluation of their own behavior as it pertains to his or her body image (Ter Bogt et al., 2006). It may be worth noting that women tend to possess a more negative body image than their male counterparts even when exercising regularly. However, for both men and women higher levels of physical fitness and health-related behaviors were positively correlated to self-esteem and body image (Lowery et al., 2005). Body image can be affected multiple ways, one of which is the individual's body composition (McLester et al., 2018).

An essential component to understand an individual's body image is his or her body composition. Body composition is a representation of the percentage of fat and fat-free body mass and can be measured in a number of ways that vary in accuracy and simplicity. Aside from body image and its associated psychological downfalls, body composition—particularly high body composition—is associated with many prominent chronic diseases such as cardiovascular disease, diabetes mellitus, hypertension and obesity (ACSM, 2018). An individual's body composition can be affected in many ways. The most prominent being physical activity levels and quality of nutrition. It is important to understand that exercise is also physical activity, but it is planned with the purpose of developing aspect(s) of fitness (ACSM, 2018; Kemmler, Von Stengel, Kohl, & Bauer,

2016; Malinauskas, Raedeke, Aeby, Smith, & Dallas, 2006). Male and female college students are subjected to societal pressures to achieve and maintain a certain body fat percentage. This can lead to social anxiety and low body image satisfaction. Research shows that males will typically report lower levels of social anxiety due to their physique than females. Research also shows that knowledge of body composition in females can affect their body image satisfaction negatively. However, this information can prompt both genders to accept that more physical activity was needed to acquire a healthy body composition (McLester et al., 2018).

Theoretical Framework

Based on The Contingencies of Self-Worth Theory (Jennifer Crocker & Connie T. Wolfe, 2001) people gain their self-esteem by proving themselves through their capabilities and characteristics. This theory may help to understand how self-esteem is connected with affect, cognition, and self-regulation of behavior; to make suggestions on when and how self-esteem is involved in social issues; clarify that when people are defamed and discredited they do not always have low self-esteem; imply self-esteem does not always decline with age; and make suggestions of self-esteem's correlation to depression (Jennifer Crocker & Connie T. Wolfe, 2001).

This theory's foundation is based on the studies of James (1890), stating that self-esteem will increase and decrease as a consequence of an individual's ability to achieve success in areas in which one places his or her self-worth and that some of the areas possess a stronger impact on self-esteem than others. This magnitude depends on what a person decides most closely relates to his or her identity. If the individual does not identify the quality or trait as a part of his or her identity, the individual may deem it

more acceptable to fail in that particular area. Crocker & Wolfe (2001) claim that these contingencies in which people place their self-worth are not instantaneous but develop over time as a consequence of social influences such as cultural norms and values, and observations of the environment. The contingencies learned over time may also be altered due to changes in one's environment or in his or her ability to achieve a standard of satisfaction in the current areas of contingencies. This means that individuals may develop and adjust their contingencies over time based on their perceived identity and environment as well as their ability to achieve satisfactory outcomes in the areas that pertain to their identity (J. Crocker & C. T. Wolfe, 2001; Sargent, Crocker, & Luhtanen, 2006).

These contingencies may consist of external influencers such as approval from others, appearance, competition, and academics in the case of college students. Or internal contingencies such as love and support from one's family, feelings of virtuousness, feelings of being a moral person, and the belief that one's god loves them (Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Sargent et al., 2006).

Purpose

The purpose of this study was to assess the correlation between body composition, perceptions of body image, and levels of self-esteem among DOWSFS.

Hypothesis

This study will be approached with the following hypotheses:

H₁: A decrease in measured body composition will positively correlate with reported self-esteem levels in DOWSFS.

H₁₀: A decrease in measured body composition will have no correlation with reported self-esteem levels in DOWSFS.

H₂: Increased levels of reported self-esteem will positively correlate with higher levels of reported body image in DOWSFS.

H₂₀: Increased levels of reported self-esteem will have no correlation with higher levels of reported body image in DOWSFS.

H₃: Increased levels of body image will positively correlate with lower measured body compositions in DOWSFS.

H₃₀: Increased levels of body image have no correlation with lower measured body compositions in DOWSFS.

Levels of body composition will be determined by body mass index (BMI) measurements. Body image will be determined using SNFRS. Levels of self-esteem will be determined using the *Rosenberg Self-Esteem Scale* (RSES).

Significance

As indicated in literature, an individual's wellbeing may be impacted by the relationship on his or her overall health. This includes mental, physical, social, emotional, career, and intellectual health (Baumeister et al., 2003; Ganem et al., 2009; Lowery et al., 2005) This combined with the desire one might have to care for his or her student employees' personal health, indicates it may be in a CWC's best interest to monitor its student employees' health and even intervene with health and wellness-based

programming. This includes, but is not limited to, the students' body composition, self-esteem levels, and body image.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The purpose of this study was to assess the DOWSFS correlations in their measured body compositions, perceptions of body image, and reported levels of self-esteem.

Body Image and Body Composition

Body Composition. Data from the American College Health Association's National College Health Assessment (2018) reported approximately 37% of college students would be classified as overweight or obese. Obesity is considered a chronic disease characterized by excess body fat and can often lead to other metabolic and chronic diseases such as cardiovascular diseases, hypertension, and diabetes mellitus (Dorresteijn, Visseren, & Spiering, 2012; Grodsky et al., 1982; Luc, Ilse, & Christophe, 2006).

There are many ways to affect body composition, most notably being physical activity levels, exercise frequency and intensity, and quality of nutrition (ACSM, 2018; Ferrara, 2009; Kemmler et al., 2016; Malinauskas et al., 2006). Ferrara (2009) claims that

upon beginning college, students are introduced to a number of changes and potential stressors. These can include changes in diet, living conditions, levels of physical activity, stress associated with livelihood, and the stress of academics. Ferrara (2009) states an observed decrease in levels of physical activity of college students may also contribute to weight gain due to decreased energy expenditure. Physical activity is defined by the American College of Sports Medicine (ACSM) (2018) as any bodily movement and result of a muscle contraction that requires energy expenditure or calories. ACSM (2018) defines exercise as planned bouts of physical activity with the goal of increasing some aspect of fitness. Excessive intake of calories from food sources without proper expenditure have commonly shown to be a root cause of accumulating body fat and levels of obesity (Malik, Pan, Willett, & Hu, 2013).

It may be important to consider a college student's aspirations and their work environment. In their study, Kemmler et al. (2016) recruited a total of 114 randomly selected college students and tracked them across their five-year study programs. In this sample, 61 were in a dental program and 53 were in a physical education (PE) program. Both groups consisted of men and women. Their body compositions were measured at the beginning and end of their five-year programs. Every two years, participants were assessed for parameters such as nutritional intake, disease, and physical activity. At the end of this study, the dental group saw a significant 33% decrease in exercise volume, a significant decrease in maximum aerobic capacity and saw a significant increase in body mass at a ratio of 2:1, fat mass and lean body mass. The PE group saw a significant increase in exercise volume, a non-significant increase in maximum aerobic capacity, and a significant increase in lean body mass with no significant changes to fat mass. Although

the PE group did show significantly higher levels of all measures of exercise from pre to post assessment, there was not a significant difference in levels of basic physical activity or nutritional intake between the groups. The researchers concluded that the most harmful effects on the fatness and fitness levels in young adults resulted in their decreased levels of exercise and potentially exercise intensity. Their claims are supported by their finding that increases in basic physical activity failed to make up for the loss of exercise within the student's lifestyles. The authors proposed that the PE group's higher levels of exercise and their favorable occupational environment contributed to their significant differences in body mass (Kemmler et al., 2016).

Considerations for a program to effect DOWSFS might involve a combination of education and direct physical applications. A study conducted by Sloan et al. (1976) implemented a 12-week program designed to promote weight loss by implementing diet and behavioral therapy techniques. Every student that completed this program achieved a significant loss in body weight. 66% of the subjects reached their weight loss goals. Individually, the weight lost ranged 3.52 to 14.74 lb. A study by Hudiburgh (1984) implemented a weight loss intervention that combined nutrition education and exercise to a group of college women. Subjects took part in an undergraduate "weight modification" course. This course covered lectures on correct dieting strategies and nutrition combined with three hours of exercise every week. This course resulted in a significant reduction in body weight with an average of 10 pounds. lost at the end of the semester. The researcher conducted a one-year follow up. Only eight of the original 20 participants participated. These eight averaged a loss of 20 pounds. since the course had begun (Hudiburgh, 1984).

Body Image. Body image is a psychological construct that explains the subjective attitude and experiences people have towards their own body. Perceived body image, knowledge of body composition, and some of the associated psychological effects, such as anxiety, have shown to effect the body image of women and men differently (Ganem et al., 2009). Body image and measured body composition possess a correlation. Watkins, Christie, and Chally (2008) recruited a sample of 188 college males and stratified them based on their BMI. The groups were underweight, normal weight, overweight, and obese. The researchers aimed to compare the BMI groups to their respective body images. Results showed a significant difference in body image, body dissatisfaction and concern for body weight. A significant correlation was found between BMI and negative body image. The authors found the higher the BMI number, the greater prevalence of negative body image. Also, overweight participants showed greater concern for body weight than did the other remaining groups. Finally, obese, underweight, and overweight participants displayed a higher level of body dissatisfaction than the normal weight group (Watkins et al., 2008).

When examining body image, it may also be important to consider muscularity and therefore weight gain as a perceived positive outcome, specifically in male college students (McCreary & Sadava, 2001). A study conducted by Drewnowski and Yee (1987) examined levels of body satisfaction in first-year college students. The results of their study showed that approximately 85% of female respondents wished to lose weight to find satisfaction. However, only 40% of male respondents wished to lose weight, while another 45% of male respondents wished to gain weight in the form of muscularity. McLester et al. (2018) tested for correlations between body composition, social physique

anxiety (SPA), the anxiety a person may experience when he or she perceives his or her physique being judged negatively by others, and appearance satisfaction in a sample of 212 male and female college students. The results of McLester et al.'s (2018) study indicated that the participants underestimated body composition measurements, with females underestimating more than males. However, females had no difference in perceived body weight and measured body weight. Whereas men tended to overestimate their weight. Females demonstrated a significant reduction in appearance satisfaction post body composition measurement, whereas males did not show a significant difference.

Self-Esteem

Self-esteem is the value one places on his or her total self, also referred to as global self-esteem or global judgements of self-worth (Rosenberg, 1965a). Self-esteem appears to be affected by both body image and body composition. A study by Frost and McKelvie (2004) assessed the relationships of self-esteem and body satisfaction of elementary, high school, and college students. The authors measured body dissatisfaction with three different variables. Body cathexis, body image, and weight satisfaction. The authors defined body cathexis as the amount of satisfaction someone has between specific aspects of their body. The results of their surveys found that both body image and body cathexis were consistent predictors of self-esteem and that self-esteem was reported lower in the female participants than in their male counterparts. Self-esteem was reported to be higher for high school than for the elementary or college students.

Other studies show a consistent correlation between college students and their self-esteem. One such study surveyed over 1,000 college students and measured their self-esteem, body image and levels of social phobia (Izgiç, Akyüz, Doğan, & Kuğu,

2004). The authors found a correlation between all three items. Self-esteem was found to be significantly lower in the individuals with social phobia. Students with social phobia also possessed significantly lower body image as well. This is further supported by the findings of Crocker and Luhtanen (2003) who reported in their findings that low self-esteem was a predictor of social problems in college students while a fragile or tenuous self-esteem that is in flux and not necessarily low self-esteem resulted in issues within the academics of college students.

Another study conducted with a sample of college students aimed to assess college students' global self-esteem, dieting choices, and their perceptions of parental control and care on body satisfaction (Sira & White, 2010). For the Sira & White (2010) study, parental control refers to which parental figure the individual was closer to or was most influenced by as a child. Also, the quality of that relationship, whether it was a positively or negatively perceived relationship. The results of their study reported body satisfaction positively correlated with self-esteem and negatively correlated with BMI and poor eating habits in both males and females. Additionally, both genders' results demonstrated an association between higher BMI's and eating disorders. Greater eating disturbances were associated with lower self-esteem in females. Females demonstrated a negative correlation between body satisfaction and maternal and paternal controls. There was no association between body satisfaction and maternal and paternal care. Males demonstrated a positive correlation between body satisfaction and maternal and paternal care, and a positive correlation between self-esteem and maternal and paternal care. Although this information on parental control was beyond the scope and purpose of this present study, it is worth attempting to understand their individual backgrounds and

upbringings when considering program interventions for college student employees. However, more information needs to be gathered on this subject. In their conclusion, the researchers state that adolescents' relationships with their parents may play an integral role in developing a positive body image and self-esteem. The researcher's results were consistent with previous research suggesting that body image and body composition share a consistent role in developing a healthy self-esteem.

The aforementioned studies clearly demonstrate self-esteem's relationship with many aspects of wellness. Literature also suggests that self-esteem can effect an individual's job performance and job satisfaction, which may affect his or her career. Judge, Locke, Durham, and Kluger (1998) asked a random sampling of U.S. college students, Israeli College students, and U.S. physicians to partake in a survey reporting on self-esteem, self- efficacy, locus of control, and non-neuroticism, referred to collectively as core self-evaluations. The authors found that self-esteem, self-efficacy, locus of control, and non-neuroticism were significantly correlated to job satisfaction among all sampled populations. This is consistent with a number of other studies and reports. One meta-analysis, conducted by Judge and Bono (2001), concluded that self-esteem, self-efficacy, internal locus of control, and emotional stability were consistent and reliable indicator of job satisfaction. This supports another review of literature by Pierce and Gardner (2004), which concludes that an individual's self-esteem may be constructed around their experiences at work and within their organizations. This is known as organization-based self-esteem and the authors found a correlation to job satisfaction, in-role performance, motivation, citizenship behavior, and organizational commitment

College students appear to be affected both mentally and physically by environmental and societal pressures. This may be essential for college student staff and DOWSFS because self-esteem can be an essential component to one's mental health due to its relationships with possible feelings of depression and happiness (Baumeister et al., 2003; Hill et al., 2015; Paans, Bot, Brouwer, Visser, & Penninx, 2018).

Instruments

Body Mass Index. There are a number of ways to measure body composition. Skinfold measurements, the method of measuring folds of an individual's skin to measure subcutaneous fat, and dual x-ray absorptiometry, which uses varying levels of x-rays to measure the density of soft and hard tissues, are popular methods of measuring body fat (Wells & Fewtrell, 2006). BMI is another common method of measuring an individual's body composition. It is less invasive and much more convenient than the aforementioned methods. BMI is a calculation of an individual's weight/height². The metric produced is used to categorize the individual anywhere from underweight to obese. Literature has noted a correlation between BMI and other prominent measures of body composition such as skinfold and dual x-ray absorptiometry (Heymsfield, Gallagher, Mayer, Beetsch, & Pietrobelli, 2007; Sira & White, 2010). BMI is also considered an accurate predictor of risks for chronic diseases such as type-2 diabetes, hypertension, and cardiovascular disease (ACSM, 2018).

Stunkard's Nine Figure Rating Scale. SNFRS, also known as Stunkard's Rating Scale. SNFRS is an instrument created by A. Stunkard and Sorensen (1983) to measure an individual's body image. SNFRS provides an individual with two groups of images. One group is of male contour drawings and the other is of female contour drawings. Both

groups' appearances of their body images increase proportionally. Each image is also associated with a numerical value ranging from one to nine in order from leanest to most obese. When presented with the figures, participants will select the one figure from either group he/she most identify with and one figure from either group that he/she least identifies with. A smaller difference between the two numerical values of both choices indicates a greater perceived body image. On the other hand, a greater difference would indicate a lesser perceived body image.

Stunkard (2000) reports that the SNFRS possess equal or better validity than several other prominent similar figure scales when assessing the dissatisfaction score in relation to the individual's BMI. This is further supported in a recent study where the SNFRS was used to measure levels of body image satisfaction while assessing body image satisfaction's relationship with perceived body image, BMI, and depression. The results of the study showed higher BMI was positively correlated with a larger perceived body size and lower levels of body image satisfaction (Paans et al., 2018). Additionally, the SNFRS instrument has been used as a standard of measurement for other body image related instruments (Gardner, Stark, Jackson, & Friedman, 1999; Ralph-Nearman & Filik, 2018). An example of this can be seen when Ralph-Nearman and Filik (2018) used the SNFRS as a standard to compare their scales developed specifically for men's body satisfaction.

Rosenberg Self-Esteem Scale. A commonly used instrument to measure self-esteem is the RSES (Abouserie, 1994; Baumeister et al., 2003; Izgiç et al., 2004; Lowery et al., 2005). The RSES is a commonly used 10-item instrument that utilizes both negative and positive phrases accompanied by a four-point Likert scale to measure a

person's self-esteem (Baumeister et al., 2003; Gray-Little, Williams, & Hancock, 1997; Rosenberg, 1965a). The Likert scale ranges from "strongly agree" to "strongly disagree". The individual selects which point they feel best represents them in relation to the corresponding phrase. The selected answers are then scored. Items one, two, four, six, and seven are scored as follows: "Strongly disagree" is worth zero points, "Disagree" is worth one point, "Agree" is worth two points, and "Strongly agree" is worth three points. Items three, five, eight, nine, and 10 are scored inversely whereas "Strongly disagree" is worth three points and "Strongly agree" is worth zero points. The higher the score, the higher the individual's self-esteem (Rosenberg, 1965a).

When the RSES was created, its original purpose was to measure the self-esteem of high school students (Rosenberg, 1979). Despite this, due to its high reliability and validity, it has since been used with various populations including college students. Crocker and Luhtanen (2003) utilized the RSES in their study measuring self-esteem as well as self-worth and their correlations to the financial, academic, and social issues of college freshmen. Rowley, Sellers, Chavous, and Smith (1998) utilized the RSES in a study researching the correlation of the racial identity and self-esteem of African-American college and high school students. Abouserie (1994) also used the RSES in a study measuring the correlations of self-esteem locus of control, and levels of stress.

Theory

The Contingencies of Self-Worth Theory states that a person's self-esteem is gained by proving themselves through certain capabilities and characteristics that he/she finds imperative to their self-identified identity (Jennifer Crocker & Connie T. Wolfe, 2001). These capabilities and characteristics may include, but are not limited to, the

following: appearance, body shape, approval from others, and academics in the case of college students. These types of contingencies are considered to be external, whereas other contingencies can originate internally, such as love and moral support from friends and family and feelings of being virtuousness (Crocker et al., 2003; Sargent et al., 2006). The foundation of this theory is rooted in the studies of James (1890). James states that self-esteem will increase and decrease in accordance with the individual's ability to successfully acquire the characteristics or achieve the abilities that he/she places his or her self-worth. The magnitude of increase or decrease in self-esteem is contingent on how closely the individual relates the characteristic or ability to his or her identity (James, 1890).

College students may be in crucial times of their lives developing their identity in the midst of a transitional period. This can leave them vulnerable to pressures of obtaining an ideal bodily appearance that they and their peers deem ideal (J. Crocker & C. T. Wolfe, 2001). An individual possessing higher levels of self-esteem is typically considered to be good thing. However, Crocker and Knight (2005) claim the pursuit of self-esteem in this way can be motivating and/or detrimental to the individual's psychological and physical health. This can mean that in situations where the individual fails to achieve satisfactory outcomes in their areas of contingent self-worth, he or she may become defensive or place blame elsewhere in order to protect his or her self-esteem. Should these defense mechanisms fail, their self-esteem may fall. Conversely, an individual may be motivated to seek out ways to increase his or her self-esteem by further establishing contingencies of self-worth. It is because of this that an attempt to shift

contingencies from external sources such as body image to more internal sources such as virtuousness may be more beneficial to the individual (Crocker & Knight, 2005).

CHAPTER III

METHODOLOGY

Purpose

The purpose of this study was to assess the correlation between body composition, perceptions of body image, and levels of self-esteem amongst DOWSFS at OSU.

Research Design

This study was conducted utilizing an electronically delivered social survey self-reporting questionnaire. The questionnaire was distributed via Qualtrics. This format allowed for the entirety of the questionnaire to be distributed efficiently and for information to be collected with complete privacy of the respondent's information intact. Participants in this study consisted of DOWSFS students. This included part-time personal trainers, group fitness instructors, and fitness associates. Upon approval granted by the Institutional Review Board, surveys were emailed to the DOWSFS student employees. These emails consisted of an informed consent, demographics questionnaire, and the questionnaire containing the instruments to measure body image and self-esteem. The questionnaires gathered demographic information such as employed position(s), year

in school (year), and height and weight in order to calculate their body mass index (BMI); the *RSES*, to assess self-esteem levels; and *SNFRS*, to assess body image. Information was collected until sufficient data from the sample was obtained. All information collected will remain completely confidential and no identifying information was collected from the respondents.

Sampling

Population. The population of this study was OSU's DOWSFS. Anyone who was a recent graduate but still employed by the Department of Wellness were still included in this study. This consisted of male and female undergraduate and graduate college students employed as a part-time personal trainer, group fitness instructor, or fitness associate.

Sample. The sample of this study was a census, meaning all members of the population group were sent the questionnaires and asked to participate.

Data Collection

Upon obtaining approval from OSU's Institutional Review Board, DOWSFS were emailed a Qualtrics link. The link lead them to an automated informed consent, a demographics questionnaire, The *RSES*, and *SNFRS*. Identifiable information such as names and emails were not collected in this study. The informed consent contained a debriefing statement detailing the purpose of the study and ensured the participants that their information would be kept anonymous and therefore confidential throughout the processes of the study, and that their participation was completely voluntary. Due to the nature of the study and the instruments utilized, information on OSU's Counseling

Services was also provided and participants were encouraged to utilize those services should anyone ever feel discomfort or possess negative thoughts during or after the study.

Once the informed consents were read and acknowledged, the DOWSFS would be asked to complete the demographics questionnaire. The demographics questionnaire inquired if the respondent was a student or recent graduate, his or her year, gender, height, weight, and which position within the Department of Wellness they worked the most hours. The *RSES* was utilized to assess self-esteem and *SNFRS* was used to assess body image. A reminder email was sent to the sample group twice a week, an email at the beginning and end of each week. Data collection is planned to take place from February 17th, 2019 to March 30th, 2019. At the time of this study, there were 100 DOWSFS employed. The minimum effective size is 51 respondents. This was determined using the publishing of Israel (1992). The confidence level was set to 95% ($P=.5$) with a precision level of $\pm 10\%$. This was acceptable due to the low sample size.

Instruments

BMI was used to measure body composition. BMI is measured by dividing an individual's weight in kilograms by their height in meters squared (Heymsfield et al., 2007). A result of <18.5 is considered underweight, 18.5-24.9 is optimal, 25-29.9 is overweight, 30-34.9 is obese-class I, 35-39.9 is obese-class II, and ≥ 40 is obese-class III.

The *RSES* was used to measure self-esteem in the sample population. This scale utilizes 10 items that are associated with a four-point Likert scale, ranging from "strongly agree" to "strongly disagree". Scores can range from zero to 30, with 15 to 25 considered normal and below 15 considered to be low levels of self-esteem (Rosenberg, 1965b). This

scale has reported a test-retest reliability ranging from .80 to .85 (Rosenberg, 1979) and concurrent correlations with the *Single Item Self Esteem Scale* ranging from .72 to .76 after six assessments. Similar outcomes were seen in men (.74), women (.73), Caucasians (.80), African Americans (.71), Asians (.70), and Latinos (.70) (Robins, Hendin, & Trzesniewski, 2001).

Stunkards Rating Scale (Frost & McKelvie, 2004), also known as the *9-Figure Rating Scale*, is a tool used to measure an individual's body image. The individual is presented with nine images of females and nine images of males. Both of these groups of images increase proportionally in body size and are correlated with a numerical value of one to nine. The individual will then select one image in which he/she thinks they most resemble, then another image in which he/she would like to resemble. A smaller difference between these two selections would indicate a greater perceived body image and a larger difference would indicate lesser perceived body image. The validity the *Stunkards Rating Scale* was tested by Hallinan, Pierce, Evans, DeGrenier, and Andres (1991) by evaluating 1,000 U.S. adults. The correlations between true body shape and actual weight and measured BMI were .59 and .67, respectively. *Stunkards Rating Scale* was also reported to possess a reliability coefficient of .78 (Thompson & Gray, 1995).

Data Analysis

Data analysis was conducted using SPSS. Due to the usage of ordinal data within the study, Spearman's Rank Correlation Coefficient Analysis and statistics of central tendency will be used to assess the relationships between BMI, body image, and self-esteem in the DOWSFS (M. M. Mukaka, 2012). The alpha level for analysis was set to $p < .05$.

CHAPTER IV

RESULTS

Overview

At the time the survey was administered there was an available population of 88 DOWSFS employees. The number of respondents was 42 (48%). The purpose of this research was to measure for any correlation between the body composition, body image, and self-esteem of DOWFS. The employment position of each respondent was also measured to assess for further correlations. Since this study was focused on undergraduate students, graduate students, or recent graduates working at the DOWSFS, only those students working under the fitness department were sent the survey resulting in a census.

Demographics

The majority of respondents were female at 66.7%. Male respondents accounted for 28.6% and the remaining 4.8% preferred not to respond. 16.7% respondents were first-year students, 28.6% of respondents were second-year students, 16.7% of respondents were third-year students, 23.8% of respondents were fourth-year students,

9.5% of respondents were fourth-year+ students, and 4.8% of respondents were graduate students or recent graduates. Finally, the majority of reported positions were personal trainers at 45.2%. 38.1% of responses indicated they were a fitness associate and 16.7% of responses indicated they were a group fitness instructor (see Table 1).

Table 1

Demographics			
Gender		Count	Percent
	Male	12	28.6
	Female	28	66.7
	Prefer not to respond	2	4.8
Year			
	First-year	7	16.7
	Second-year	12	28.6
	Third-year	7	16.7
	Fourth-year	10	23.8
	Fourth-year+	4	9.5
	Graduate/recent grad	2	4.8
Position			
	Fitness associate	16	38.1
	Personal trainer	19	45.2
	Group fitness instructor	7	16.7
		N=42	

Descriptive Statistics

The mean, median, and mode response of BMI was within the normal weight category. 52.4% of responses categorized as normal weight, 35.7% of responses categorized as overweight, and 11.9% of responses categorized as obese. None of the responses came back as underweight (see table 2)

Table 2

BMI Frequencies

	Underweight		Normal weight		Overweight		Obese	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
BMI	0	0	22	52.4	15	35.7	5	11.9

The mean SNFRS response was 1.07. The mean and mode responses were 1.00. These results would indicate high self-esteem amongst the respondents. 31% of responses indicated a difference of zero between answers, 40.5% of responses indicated a difference of one, 19% of responses indicated a difference of two, and 9.5% of responses indicated a difference of three (see Table 3).

Table 3

SNFRS Frequencies

	0		1		2		3	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
SNFRS	13	31	17	40.5	8	19	4	9.5

The mean, median, and mode response of RSES indicated normal levels of self-esteem (see Table 5). 11.9% of responses indicated low self-esteem, 73.8% of responses indicated normal self-esteem, and 14.3% of responses indicated high self-esteem (see Table 4).

Table 4

RSES Frequencies

	Low		Normal		High	
	Count	Percent	Count	Percent	Count	Percent
RSES	5	11.9	31	73.8	6	14.3

Table 5

Descriptive Statistics

	Mean	Median	Mode
BMI	25.58	24.90	23.60
SNFRS (body image)	1.07	1.00	1.00
RSES (self-esteem)	20.38	20	20

Spearman's Rank Correlation Coefficient

Spearman's rank correlation coefficient or Spearman's Rho (ρ) was used to assess the strength of association between the respondent's BMI, SNFRS score, RSES score, and employment position. When analyzing Spearman's Rho, positive correlations are denoted with a positive number, with stronger correlation being closer to one. Whereas, negative correlations are denoted with a negative number and stronger correlations are closer to a negative-one. A result of zero would indicate no correlation between variables (M. Mukaka, 2012). In this study, statistical significance was also tested within each variable pairing. The α was set to 0.05, meaning the confidence level was .95.

The results for each paired variable were as follows: BMI and SNFRS ($\rho = .303$, $P = .051$), BMI and RSES ($\rho = -.121$, $P = .444$), BMI and position ($\rho = -.128$, $P = .421$), SNFRS and RSES ($\rho = -.247$, $P = .115$), SNFRS and position ($\rho = -.238$, $P = .129$), RSES and position ($\rho = .146$, $P = .356$). These results show there was no significant association

between any two variables (see Table 6). Further correlations were examined including gender and the respondent's year. There was a significant correlation between gender and RSES (ρ -.325, P = .036) and year and position (ρ .383, P = .012).

Table 6.

Correlations of BMI, SNFRS score, RSES score, and employment position

		BMI	SNFRS	RSES	Position	Gender	Years
BMI	Correlation	1.000	.303	-.121	-.128	-.182	-.163
	Coefficient						
	Sig. (2-tailed)	.	.051	.444	.421	.249	.303
SNFRS (Body image)	Correlation	.303	1.000	-.247	-.238	.129	-.158
	Coefficient						
	Sig. (2-tailed)	.051	.	.115	.129	.417	.318
RSES (Self-Esteem)	Correlation	-.121	-.247	1.000	.146	-.325	.220
	Coefficient						
	Sig. (2-tailed)	.444	.115	.	.356	.036	.162
Position	Correlation	-.128	-.238	.146	1.000	.172	.383
	Coefficient						
	Sig. (2-tailed)	.421	.129	.356	.	.277	.012
Gender	Correlation	-.189	.129	-.325	.172	1.000	.148
	Coefficient						
	Sig. (2-tailed)	.249	.417	.036	.227	.	.348
Years	Correlation	-.163	-.158	.220	.383	.148	1.000
	Coefficient						
	Sig. (2-tailed)	.303	.318	.162	.012	.348	.

Hypothesis I

The first hypothesis was: A decrease in measured body composition will positively correlate with reported self-esteem levels in DOWSFS. The data reported from the Spearman's rank correlation coefficient analysis ($\rho = -.121$, $P = .444$) indicated that there was not a significant correlation between the two variables. Furthermore, the trend of the Spearman's Rho ($\rho = -.121$) would indicate a negligible and negative correlation (M. Mukaka, 2012). A positive correlation would have been represented by a positive number and a stronger correlation being one closer to a positive one. $\rho = -.121$ not only denotes a negative trend with the result being so close to zero, the trend is that of almost no correlation. With these results, the null hypothesis was not rejected (see Table 7).

Table 7

Correlations of BMI & RSES

Spearman's Rho	Correlation Coefficient	-.121
	Sig. (2-tailed)	.444

Hypothesis II

The second hypothesis was: Increased levels of reported self-esteem will positively correlate with higher levels of reported body image in DOWSFS. The reported data from the Spearman's rank correlation coefficient analysis ($\rho = -.247$, $P = .115$) indicated that there was not a significant correlation between the two variables. The trends of this data set ($\rho = -.247$) would also indicate a negligible and negative correlation

(M. Mukaka, 2012) between these variables. These results indicate the null hypothesis was maintained (see Table 8).

Table 8

Correlations of RSES & SNFRS		
Spearman's Rho	Correlation Coefficient	-.247
	Sig. (2-tailed)	.115

Hypothesis III

The third hypothesis was: Increased levels of body image will positively correlate with lower measured body compositions in DOWSFS. The reported data from the Spearman's rank correlation coefficient analysis ($\rho = .303$, $P = .051$) indicates there was not a significant correlation between the two variables. Although $\rho = .303$ would be stronger than some other results, it is still considered a weak correlation (M. Mukaka, 2012). Furthermore, the P value of .051 would also indicate that this null hypothesis be maintained as well (see Table 9).

Table 9

Correlations of BMI & SNFRS		
Spearman's Rho	Correlation Coefficient	.303
	Sig. (2-tailed)	.051

Statistically Significant Differences

Although these variables were not hypothesized, there was a statistically significant correlation between gender and RSES ($\rho = -.325$, $P = .036$) and year and position ($\rho = .383$, $P = .012$). These results imply there may be a strong relationship between the DOWSFS' gender and their self-esteem. Because Spearman's Rho is $-.325$, this may indicate an inverse relationship in that female DOWSFS may have more affinity towards lower self-esteem. Furthermore, the Spearman's Rho of $.383$ between year and position might indicate that the further along a DOWSFS is within their year of study, the more likely they are to be a personal trainer or group fitness instructor. These results may indicate areas for further study as more data would be necessary to validate these results (see Table 10).

Table 10

Statistically Significant Differences

Gender & RSES (self-esteem)		
Spearman's Rho	Correlation Coefficient	$-.325$
	Sig. (2-tailed)	$.036$
Year & Position		
Spearman's Rho	Correlation Coefficient	$.383$
	Sig. (2-tailed)	$.012$

Conclusion

This study assessed the correlations between body composition, body image, and self-esteem in DOWSFS. Three hypotheses were tested using Spearman's rank correlation coefficient. The first hypothesis was: A decrease in measured body composition will positively correlate with reported self-esteem levels in DOWSFS. The results indicated that the null hypothesis be maintained as there was not a significant correlation. The second hypothesis was: Increased levels of reported self-esteem will positively correlate with higher levels of reported body image in DOWSFS. The results also suggested the null hypothesis be maintained. Finally, the third hypothesis was: Increased levels of body image will positively correlate with lower measured body compositions in DOWSFS. The results of these data also suggested the null hypothesis be maintained. In conclusion, the null hypothesis was maintained for hypothesis I, hypothesis II, and hypothesis III. Although there was no significance found between any hypothesized variables, there were significant correlations between gender and self-esteem and year and position.

CHAPTER V

DISCUSSION

Introduction

The purpose of this study was to assess the correlation between body composition, perceptions of body image, and levels of self-esteem among DOWSFS. This study did not find any significant correlation between any two of the hypothesized variables. Therefore, all three null hypotheses were maintained. This indicates that there might not be a direct association between any combination of the variables. However, these findings were in contrast to what was reported by the literature and theoretical model. A majority of past research would still indicate that perceived body image and actual body composition possess a significant correlation and effect on the mental wellbeing of college students (Ganem et al., 2009; Watkins et al., 2008). There is also literature indicating a significant relationship between self-esteem and body image (Crocker & Luhtanen, 2003; Izgiç et al., 2004).

Limitations

The most critical limitation of this study might be its sample size. With only 42 responses from a census of 88, more information would be advantageous to finding a

more appropriate conclusion. However, the DOWFS of OSU was chosen due to its convenience of familiarity and access. It would be desirable to have several other similar studies ran across other similarly sized CWC across the country to gain a better understanding of the data.

A unique limitation that may have affected the response rate could be the time in which this study took place. The survey was sent out during the spring 2020 semester near the time of the COVID-19 pandemic, which could have affected the number of survey responses for this study.

Furthermore, this study was conducted using an electronically delivered social survey self-reporting questionnaire. Although this survey was kept completely anonymous, the questions may have been answered with bias due to the respondent's personal feelings on body image, body composition, and self-esteem. In regard to the instrumentation used, all instruments were well validated. However, the usage of BMI to assess body composition could have led to some misleading data. Although there is a reported correlation of BMI and other major forms of body composition analysis, BMI does not directly measure body fat, but instead extrapolates a category based off the participant's height and weight (Heymsfield et al., 2007; Sira & White, 2010).

Future Research

The results of this study did not indicate any significant correlations between the hypothesized variables. However, the literature on body composition, body image, and self-esteem in college students might be of importance when understanding how these variables affect the health of the students hired within CWC. Future research should be

dedicated to understanding the effects of body composition, body image, and self-esteem within CWC student staff. It may also be more beneficial to study the individual effects of each variable first, and then assess correlations between those findings.

The results and trends from this study might also suggest the need for further research and greater understanding of the relationship between the students' gender and year and how that might affect their body composition, perceptions of body image, and levels of self-esteem. The better the understanding of these relationships the more proactive the full-time leadership of CWC's can be in addressing the health and wellness concerns of its student employees.

Conclusion

This study did not result in any significant correlations. Therefore, all three null hypotheses were maintained. Even though this study did not lead to any significant correlations, these results were in contrast to other results in literature on the related subjects of body composition, body image, and self-esteem in college students. Although not hypothesized, there were significant correlations between gender and self-esteem and year and position.

Future research and a better understanding of these variables and their effects on CWC student staff could lead to the creation of programs to engage, educate, and empower students to develop healthier lifestyles for themselves. With continuing research put it into practice, such efforts may aid in improving the overall health and wellness of students working in the wellness facilities and programs on college campuses.

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APPENDICES

APPENDIX A: Invitation to Participate

Hello,

I hope this email finds you well. My name is Xzaveion Price. I am a graduate student at Oklahoma State University and am looking to complete my masters thesis.

Through my research, I am interested in understanding the relationships of body composition, body image, and self-esteem in wellness center fitness staff. You are receiving this email because of your employment at Oklahoma State University's Department of Wellness. If you have a moment, please follow the link below and complete a short three-minute Qualtrics survey. For your convenience, this survey is mobile phone compatible.

You will be presented with information relevant to the topics of body composition, body image, and self-esteem and asked to answer some questions about it. Please be assured that your responses will be kept completely confidential. None of your responses will be able to be traced back to you, even by the researcher.

Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice.

Survey Link: https://okstatecoe.az1.qualtrics.com/jfe/form/SV_bI70jnuteTvUc1n - You may need to copy and paste this link into a web browser.

Thank you in advance for your time. If you have any questions or concerns, you may contact me directly.

Best regards

APPENDIX B: Informed Consent

Welcome!

I am interested in understanding the relationships of body composition, body image, and self-esteem in wellness center fitness staff. You will be presented with information relevant to the topics of body composition, body image, and self-esteem and asked to answer some questions about it. Please be assured that your responses will be kept completely confidential. None of your responses will be able to be traced back to you, even by the researcher.

Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. If you would like to contact the Principal Investigator or faculty advisor of the study to discuss this research, please e-mail Xzaveion Price at xprice@okstate.edu or Dr. Lindenmeier at donna.lindenmeier@okstate.edu. The study should take you around three minutes to complete.

By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason. If at any point you should feel uncomfortable, feel any negative emotions, or experience any negative thoughts, you may contact Oklahoma State University's Counseling Services at (405) 744-5472 or visit them at Student Union, #320, Stillwater, OK 74078.

Please note that this survey will be best displayed on a laptop or desktop computer.

Further contact information is displayed below for your convenience. Including the contact information for the Institutional Review Board (IRB) for questions concerning participant rights.

Xzaveion Price
xprice@okstate.edu
270-535-9644

Dr. Donna K. Lindenmeier
Oklahoma State University, Associate Professor
Rho Phi Lambda National Vice President
Recreation Management, Leisure Studies
182 Colvin Stillwater, OK 74078
405.744.3700

Oklahoma State University Institutional Review Board
Office of University Research Compliance
223 Scott Hall, Stillwater, OK 74078
Website: <https://irb.okstate.edu/>
Ph: 405-744-3377 | Fax: 405-744-4335 | irb@okstate.edu

- ☐ I consent, begin the study
- ☐ I do not consent, I do not wish to participate

APPENDIX C: Demographics Questionnaire

Are you a current student or recent graduate of Oklahoma State University?
Recent graduate: Graduated from Oklahoma State University within the last two semesters of school.

- ☐ Yes
- ☐ No
- ☐ Prefer not to respond

What year are you currently enrolled in?

- ☐ First year
- ☐ Second year
- ☐ Third year
- ☐ Fourth year
- ☐ Fifth year+
- ☐ Graduate/Graduated
- ☐ Prefer not to respond

Which gender do you most identify with?

- ☐ Male
- ☐ Female
- ☐ Prefer not to respond

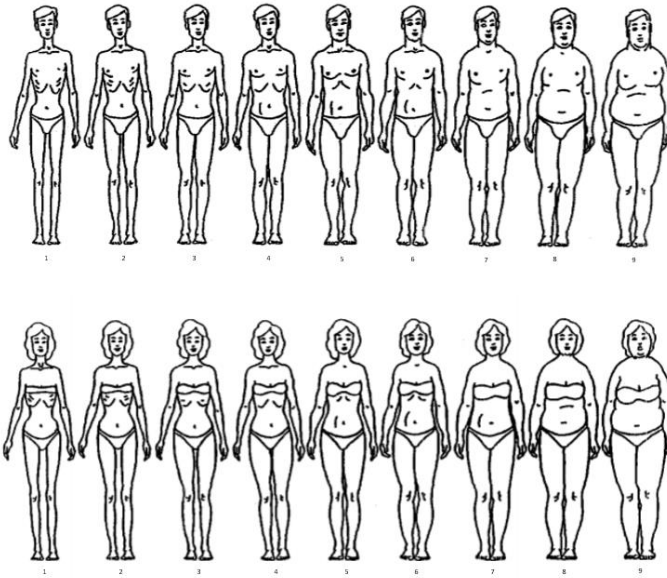
How tall are you? (ex: 6'2")

How much do you weigh in pounds? (ex: 175)

Which position do you currently work the most hours for?

- ☐ Fitness Associate
- ☐ Personal Trainer
- ☐ Group Fitness Instructor

APPENDIX D: Stunkard's Nine Figure Rating Scale



Stunkard's Nine Figure Rating Scale: From the images above, please choose the number of the image that you believe you most resemble.

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9

Stunkard's Nine Figure Rating Scale: From the images above, please choose the number of the image that you would like to resemble.

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9

APPENDIX E: Rosenberg Self-Esteem Scale

Rosenberg's Self-Esteem Scale: From the following Statements, please select what applies to you most from "strongly agree" to "strongly disagree".

	Strongly agree	Agree	Disagree	Strongly disagree
I feel that I am a person of worth, at least on an equal plane with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that I have a number of good qualities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All in all, I am inclined to feel that I am a failure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to do things as well as most other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I do not have much to be proud of.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I take a positive
attitude toward
myself.

☐☐☐☐

On the whole, I
am satisfied
with myself.

☐☐☐☐

I wish I could
have more
respect for
myself.

☐☐☐☐

I certainly feel
useless at
times.

☐☐☐☐

At times I think
I am no good at
all.

☐☐☐☐

VITA

Xzaveion Ray Price

Candidate for the Degree of

Master of Science

Thesis: RELATIONSHIPS OF BODY COMPOSITION, BODY IMAGE,
AND SELF-ESTEEM IN COLLEGIATE FITNESS STAFF

Major Field: Leisure Studies

Biographical:

Education:

Completed the requirements for the Master of Science in Leisure Studies at Oklahoma State University, Stillwater, Oklahoma in May, 2020.

Completed the requirements for the Bachelor of Science in Exercise Science at Western Kentucky University, Bowling Green, Kentucky in 2017.

Experience:

Graduate Assistant for Fitness for the Department of Wellness at Oklahoma State University

Professional Memberships:

NIRSA

National Strength & Conditioning Association